

# COVID-19 RESPONSE FUNDING UPDATE

May 1-7, 2020

## FACTS

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\$50,579,581

Funds Mobilized

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363 Grants Funded

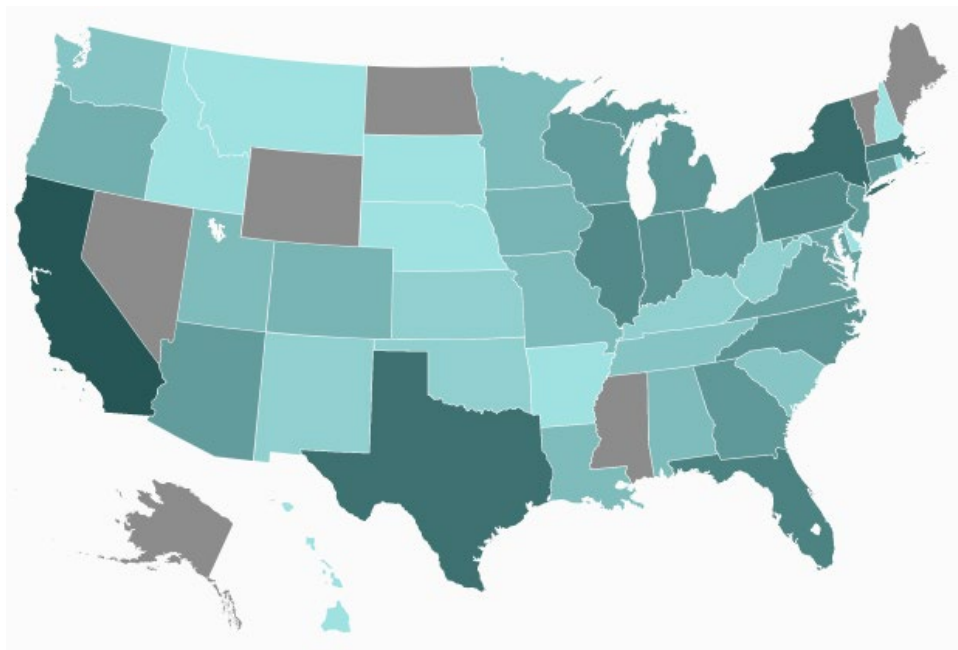
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# OVERVIEW

In response to the COVID-19 virus, the National Science Foundation (NSF) is mobilizing funding from the FY2020 budget and supplemental appropriations through the Coronavirus Aid, Relief, and Economic Security (CARES) Act. CARES Act funding supports a wide range of research areas to help the country fight and recover from the COVID-19 crisis through several research funding mechanisms, including Rapid Response Research (RAPID), a fast-tracked grant process to accelerate critical discoveries.

## AWARDS



COVID-19 related awards by state, shade of blue correlates to number of awards.

	CARES Act	All COVID-19
<b>Number of Awards</b>	262	363
<b>Funding Deployed</b>	\$37,601,300	\$50,579,581

This update spotlights several recent awards, just a snapshot of the essential work NSF is funding through the CARES Act and FY2020 appropriations. You can explore all of the COVID-19 related research grants awarded through the National Science Foundation at [this link](#).

## DIVISION OF INTEGRATIVE ORGANISMAL SYSTEMS

### CARES Act \$199,864

<b>Title</b>	Collaborative Research: RAPID: Spatial Modeling of Immune Response to Multifocal SARS-CoV-2 Viral Lung Infection
<b>Institutions</b>	University of New Mexico; Albuquerque, New Mexico Arizona State University; Tempe, Arizona
<b>What</b>	Researchers are creating moving visualizations of infection progress and immune response in different individuals over time. This model combines biological data and CT scans from infected individuals to explore how the initial distribution of the virus in the lungs, its spread, and immune system response affect the course of infection.
<b>Why</b>	Visualizing how the virus spreads within the lung and how T cells, the immune cells that respond to an infection, find and destroy infected lung cells will help scientists understand variation in immunological responses to the COVID-19 virus – why some clear the virus and why it is fatal to others.

## DIVISION OF COMPUTER AND NETWORK SYSTEMS

### CARES Act \$200,000

<b>Title</b>	RAPID: In-Home Automated and Non-Invasive Evaluation of COVID-19 Infection with Commodity Smartphones
<b>Institution</b>	University of Pittsburgh; Pittsburgh, PA
<b>What</b>	Researchers are developing new approaches that enhance how smartphone microphones can “listen” to a person’s respiratory system, and by applying Artificial Intelligence and deep learning techniques to analyze their breathing, are able to assess whether symptoms are a potential COVID-19 infection.
<b>Why</b>	This tool will allow individuals to make a more informed decision about their symptoms before deciding to go to a medical center or doctor’s office, helping reduce the load on medical professionals and keeping people out of environments that present a higher risk of spreading infection.

## DIVISION OF INFORMATION AND INTELLIGENT SYSTEMS

### CARES Act \$103,339

<b>Title</b>	RAPID: A Virtual Reality Simulator to Train First Responders Involved in Health Care Efforts Related to the Covid-19 Virus Outbreak
<b>Institution</b>	Oklahoma State University; Stillwater, OK
<b>What</b>	Researchers are creating training technology to help meet the urgent need to increase the number of emergency responders. Through virtual reality simulation environments, new emergency responders around the country can be trained more quickly and efficiently.
<b>Why</b>	While more trained professionals are needed to augment the emergency response workforce fighting COVID-19, the onus has been on the peer professionals to take their valuable time off and train the newly recruited emergency responders. Virtual systems such as this can help remove this burden of training from professionals while ensuring a steady flow of prepared trainees to help in the response.

## DIVISION OF SOCIAL AND ECONOMIC SCIENCES

### CARES Act \$135,825

<b>Title</b>	Rapid: The Psychological Underpinnings of Panic Buying During the Covid-19 Outbreak and How to Mitigate Them
<b>Institution</b>	University of Rhode Island; Kingston, RI
<b>What</b>	Reacting to the COVID-19 pandemic, many consumers all over the world are panic buying. By studying the psychology of panic buying, researchers will develop recommendations for policy makers and other leaders that can be used to mitigate the psychological triggers of such behavior in times of crisis.
<b>Why</b>	Panic buying — including hoarding and stockpiling — burdens our supply chains, increases prices and creates shortages to vital goods needed by frontline health care workers as well as vulnerable populations like the elderly. Effective communications, informed by current research, can help the media, policy makers, government officials and retailers stem the behavior.

## **DIVISION OF MATERIALS RESEARCH**

### **CARES Act \$151,093**

- Title** RAPID: Ionic Modulation of COVID Through Ceramic Surfaces for Deactivation
- Institution** Purdue University; West Lafayette, IN
- What** Researchers are studying how the coronavirus interacts with certain types of ceramic materials to understand how the atomic structures of these materials actively capture and decontaminate coronavirus germs.
- Why** As people return to shared spaces, it will be necessary to take measures that can prevent transmission between people through common surfaces. This research helps transform surfaces from risk factors for spreading the virus into tools that help stop the spread of the disease.

## **DIVISION OF HUMAN RESOURCE DEVELOPMENT**

### **CARES Act \$200,000**

- Title** RAPID: Educational Interventions for Undergraduate Students and Informal Learners for Robust Learning of COVID-19 Knowledge
- Institution** Bethune-Cookman University; Daytona Beach, Florida
- What** Researches will study the efficacy of two interventions for engaging distance learning. These interventions could equip undergraduate students and informal learners with skills to find data-driven solutions by interacting with data generated during the COVID-19 pandemic.
- Why** Developing educational technology interventions for empowering students to solve challenges in areas of data flow, curation and analytics could lead to solutions within the current crisis and inspire students to pursue careers in data science.

## DIVISION OF ELECTRICAL, COMMUNICATIONS AND CYBER SYSTEMS

### CARES Act \$150,000

<b>Title</b>	RAPID: COVID-19: A Low-Cost Disposable Wearable for Real-Time Tracking of the Risk of and Recovery to COVID-19, Influenza, and other Viral Infections
<b>Institution</b>	University of California San Diego; La Jolla, CA
<b>What</b>	Researchers are creating a self-powered, wearable platform technology that monitors body temperature for fever detection and respiration function for coughing and shortness of breath, and that wirelessly transmits data for population health analysis.
<b>Why</b>	The world needs a way to quantitatively triage individuals who are at high risk of carrying COVID-19 or other viral infections based on more than their self-reported symptoms, and to monitor patients at home in case their symptoms become more serious.

## DIVISION OF EARTH SCIENCES

### FY2020 \$44,078

<b>Title</b>	RAPID: Hydrologic Control on Sars-Cov-2 Transfer to Streams
<b>Institution</b>	Yale University; New Haven, CT
<b>What</b>	This research will study to what extent the COVID-19 coronavirus reaches and spreads in streams, rivers, and other water systems. It will also study how storm events affect the spread of coronavirus in water systems.
<b>Why</b>	Understanding all the possible ways that the COVID-19 coronavirus is transmitted is important for accurately assessing transmission risks, modeling the spread of the disease, and designing effective public health responses.

## Related NSF Research News

- Case Western Reserve researchers are being recognized throughout the Cleveland region for their newsworthy online risk-assessment map
  - Fox8: [CWRU researchers create map used to evaluate risk of COVID-19 transmission](#)
  - WTAM: [CWRU has a coronavirus hot spot map & mobile app](#)
  - Ideastream Public Broadcasting: [CWRU Researchers Create Real-Time Tool To Map COVID-19 Risk](#)
- [COVID-19 analysis performed with galaxy bioinformatics platform](#)
- NSF Science Matters Blog: [7 ways to help your kids with math homework](#)